states that it is abundant in Denmark, growing mostly in large close communities. Its gregarious habit is due to the activities of horizontal rhizomes, which also account for the sharpness of the boundaries separating it from other vegetation. It thrives well in full light, and in shade up to 5–10 per cent of open daylight, the greatest vigor being shown in 10–20 per cent of full illumination. A moderate amount of soil moisture also seems necessary to meet its requirements; but while OLSEN has determined the percentage of soil moisture in the habitats under consideration, he has not attempted to determine the growth water available.

By several authors *Urtica dioica* has been placed among nitrogen-requiring plants, and the principal feature of this investigation was the experimental examination of this quality. Microchemical tests showed that the plants themselves always contained considerable nitrates, especially in the stems, rhizomes, and roots. Soil samples were then taken at a depth at which the roots of the plant abound, in twenty localities, some within and others without the nettle communities. The nitrate content of such samples was determined, both at once after they were taken, and again after the soil had been kept moistened in a jar at 18° C. for twenty-five days. This procedure was in order to obtain an expression of the nitrifying power of the soil. These data were tabulated, together with the hydrogen-ion concentration, the percentage of soil moisture, and the light value of the locality. The table makes it evident that the only factor varying directly with the presence of *Urtica dioica* is the nitrate content of the soil.

Experimental cultures of the plant were made, using portions of rhizomes planted in washed sand and watered with nutrient solutions containing varying amounts of nitrates. Growth was in direct proportion to the relative amounts of available nitrogen; hence the conclusion was reached that *Urtica dioica* in nature is able to make sufficiently vigorous growth to enable it to compete successfully with other vegetation only where there is a relatively large amount of nitrogen in available form present in the soil. The experiment also showed that nitrification proceeds in soils showing an acid reaction as high as $P_H = 3.6$, and that ammonium used as a source of nitrogen was toxic to the nettle.—GEO. D. FULLER.

**Pink root of onions.**—Another of the many diseases directly attributed by farmers to alkali in the soil has recently been shown to be due to a parasite, as a result of investigations carried on in the Texas Experiment Station.[5] Isolation and inoculation studies have definitely connected a species of *Fusarium*, tentatively called *F. malli*, with the pink root disease of onions. Over twenty-five species of fungi were found in diseased plants, including several species of *Fusarium*, and the association of some of these fungi with *F. malli* increased the virulence of the latter. All varieties of onions and garlic

[5] TAUBENHAUS, J. J., and MALLY, W., Pink root disease of onions and its control in Texas. Texas Agric. Exp. Sta. Bull. 273. pp. 42. *figs. 3.* 1921.

inoculated appeared to be more or less susceptible to the pink root organism, but other liliaceous plants, such as *Funkia*, *Tulipa*, *Calla*, *Iris*, and *Lilium* were immune. Pink root of onions has been observed in California, Iowa, Wisconsin, New York, and the Bermuda Islands. In Texas it seriously threatens the industry of growing onions for the early northern markets, which industry has become an important one. Losses vary from $150 to $400 per acre.

Symptoms of pink root include yellowing of the roots, followed by their pink discoloration, drying, and death. The bulb exhausts its energy in producing new roots. Alkali soil, deficiency in nitrogen and humus, excessive temperatures, eel worm and thrips attacks are factors favoring the disease. The seed is not a carrier, but onion "sets," both dry and green, may harbor the causal fungus. Suggested control methods include the use of virgin soil for seed bed and field plantings, steam or formaldehyde disinfection of seed beds known to contain the pink root fungus, rotation of crops, the use of quickly acting fertilizers, careful use of tools, and various cultural practices favoring continued growth of the crop. An attempt to control nematodes by adding cyanimide to the soil failed because the amount required to affect nematodes killed the crop.—J. G. Brown.

**Carbon nutrition.**—Storage rot fungi of the sweet potato have been investigated by Weimer and Harter,[6] who find that seven of eight species causing rot can utilize glucose as a source of carbon. Five of them are able to increase the acidity of the culture medium, and certain species increased the osmotic concentration of the substratum. The glucose is utilized partly as a source of energy, partly in producing mycelium, and perhaps in still other ways. The respiratory activity of these organisms has been studied by the same authors,[7] who used the amount of $CO_2$ set free as the measure of the carbohydrate used in this process. *Penicillium* sp., *Botrytis cinerea*, and *Sclerotium bataticola* grew slowly, produced relatively large amounts of dry material, consumed nearly all of the glucose, and produced $CO_2$ most freely. The other species grew more rapidly, but produced comparatively small amounts of $CO_2$ and did not consume all the glucose. The economic coefficient was found unusually high in two species. *Fusarium acuminatum* required 17.11 G. and *Mucor racemosus* 22.86 G. glucose for each gram of dry matter grown. The $CO_2$ set free is not equal to the theoretical amount that could have formed from the sugar consumed. Some of the sugar evidently was not completely respired, as alcohol and acids appeared in some of the culture solutions.—C. A. Shull.

**Transmission of potato wilts.**—Among the various wilts which are responsible for heavy losses sustained by potato growers are those due to attacks of

[6] Weimer, J. L., and Harter, L. L., Glucose as a source of carbon for certain sweet potato storage rot fungi. Jour. Agric. Res. **21**: 189–210. 1921.

[7] ———, Respiration of sweet potato storage rot fungi when grown on a nutrient solution. Jour. Agric. Res. **21**: 211–226. 1921.